



MATH 300A – LINEAR ALGEBRA
SPRING 2009 – 3 HOURS
MWF 12:30-1:20PM

DEPARTMENT: Mathematics and Computational Sciences

Phone: 630-829-6550

PREREQUISITE: "C" or better in MATH-212

FACULTY: Dr. Nadolski; 126 BK Hall; mail box: BK 135; **Phone:** 630-829-6537; **E-mail:** jnadolski@ben.edu

OFFICE HOURS: MWF 1:30-2:30PM and TuTh 2-2:30PM; or by appointment (in person, via phone or via email)

REQUIRED COURSE MATERIALS (bring to class daily)

1. Text: Grossman, *Elementary Linear Algebra*, 5th edition. The student solutions manual is on reserve in the library.
2. You may utilize programmable calculators without symbolic algebra capabilities (no TI-89 or 92 or other CAS) like TI-83(+) or TI-84(+) (I will only provide support TI-83(+) and TI-84(+)).

COURSE DESCRIPTION: This course offers an introduction to abstraction in higher level mathematics, in the language and content of matrix and linear algebra. Topics include Gaussian elimination, matrix algebra, theory of determinants, vector spaces (independence, span, basis, etc), inner products, linear transformations, and eigenvalues. Most of Chapters 1-6 of the text will be addressed. The software MAPLE will be introduced as a calculating tool.

TECHNOLOGY REQUIREMENTS: The course will employ the computer algebra system MAPLE for matrix computations. Exams will be given in the computer laboratory—and you are expected to use MAPLE for some problems. Basic instruction in using MAPLE for the types of problems we encounter will be given. MAPLE should be available on all campus computers. Along with MAPLE and your calculator, we will be using WebCT for assignments and notifications as necessary.

IDEA OBJECTIVES:

1. Gaining factual knowledge (terminology, classifications, methods, trends)
2. Learning fundamental principles, generalizations, or theories
3. Developing specific skills, competencies, and points of view needed by professionals in the field most closely related to this course.

COURSE OBJECTIVES

1. To acquire the mathematical understanding from the content of the following portions of *Elementary Linear Algebra*: most of chapters 1-6
2. To develop abstraction and proof-writing skills, which will be beneficial in higher-level mathematics
3. To help develop writing skills, particularly in the communication of quantitative results
4. To help develop your ability to work cooperatively with others
5. To help you establish and practice good study habits
6. To develop a better understanding (on both our parts) of your ability to understand and apply the required content

Mastery is demonstrated through written homework and exams. We also hope to see some of the aesthetic beauty of mathematics as well as the practical applications of linear algebra, in exercises both manual and computer-assisted.

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ACADEMIC HONESTY: The search for truth and the dissemination of knowledge are the central missions of a university. Benedictine University pursues these missions in an environment guided by our Roman Catholic tradition and our Benedictine heritage. Integrity and honesty are therefore expected of all members of the University community, including students, faculty members, administration, and staff. Actions such as cheating, plagiarism, collusion, fabrication, forgery, falsification, destruction, multiple submission, solicitation, and misrepresentation, are violations of these expectations and constitute unacceptable behavior in the University community. The penalties for such actions can range from a private verbal warning, all the way to expulsion from the University. The University's Academic Honesty Policy is available at <http://www.ben.edu/AHP> and students are expected to read it.

Students will be responsible for their own work. You are encouraged to work along with your classmates but the work you turn into me will be of your own. Therefore, all work must be shown for full credit on homework and exams. Any student observed cheating during an exam or assignment will receive a grade of zero for that exam or assignment.

Bringing any unapproved calculator to this course or to any exam will constitute cheating on the exam or assignment. A second offense of cheating on homework or exam will result in a failing grade for the course and the appropriate administrators will be contacted. Cheating on the final exam will also result in a failing grade for the course.

I will pursue every case of alleged academic dishonesty. Some students feel that a faculty member will not pursue a cheating incident unless that matter is "severe" and the proof "indisputable". Every incident of academic dishonesty is a "severe" matter and it is my obligation as a faculty member at Benedictine University to pursue it. Research shows that faculty members who are reluctant to pursue alleged cases of cheating actually *encourage* other students to do the same, because students feel they'll be at a disadvantage if they don't. Any incident of academic dishonesty will be reported to the appropriate authorities on campus.

ATTENDANCE: Given the cumulative nature of the course content, it is important that students attend all class sessions. However, if it becomes necessary for you to miss a class session, please let me know in advance if at all possible. Make-up privileges for missed graded work will be extended only if circumstances warrant special consideration and must be cleared with me in advance. PROMPT, COMPLETE ATTENDANCE is expected at all classes. Please attend the ENTIRE class or do not attend at all; the only acceptable excuse for tardiness is another instructor running late. Professional courtesy toward your instructor and your classmates is expected.

CLASS COMMUNICATION: Both WebCT and email will be used for class communication. **Check your email and WebCT at least once a day for information related to class.**

Academic Accommodations For Religious Obligations (AAFRO):

A student whose religious obligation conflicts with a course requirement may request an academic accommodation from the instructor. Students must make such requests in writing by the end of the first week of the class.

ELECTRONIC DEVICES POLICY: One aspect of being a member of a community of scholars is to show respect for others by the way you behave. One way of showing respect for others in the educational community is to do your part to create or maintain an environment that is conducive to learning. That being said, allowing your cell phone to ring in class is completely inappropriate because it distracts your classmates and thus degrades their overall classroom experience. For the sake of your classmates, *you are expected to turn off your cell phone or set it to mute/silence BEFORE you enter class—every class.* Furthermore, if you use your cell phone *in any manner* during class (e.g. text messaging, games, etc.), you will be dismissed from class and will forfeit any points you might have earned in the remainder of the period. If you use your cell phone *in any manner* during a test or quiz, you will receive a zero for that test or quiz. (This policy also applies to pagers, iPods, BlackBerrys, PDAs, Treos, MP3 players and all other electronic communication and/or data storage devices.)

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COURSE GRADING

The grade for this course will be based on a total of 100%, distributed as noted in the following table.

Item	Percentage
Homework	16%
3 Exams	51%
Final examination	33%

Three exams will be given on or about 2/16, 3/30, and 4/20. **The comprehensive final exam is Thursday, May 7, 10:15am-12:15pm.** All exams will be given in a computer lab. Weekly assignments will be given and graded. Some assignments will require the use of software, MAPLE, or whatever is available to you (many calculators also have robust matrix algebra support).

Late homework is unacceptable. Makeups of homework and exams will be arranged if a doctor's note is provided or Benedictine University athletic events occur (arrangements in advance).

During the semester, extra credit opportunities may be provided and applied to the homework portion of the grade.

Tentatively, the final grade will be assigned as follows, based on percentage of points:

% of Points	Grade
89.50-100%	A
79.50-89.49%	B
69.50-79.49%	C
59.50-69.49%	D
0-59.49%	F

The above is only a guideline. The actual breakpoints may vary depending on the difficulty of the midterm and final exams. ***The exams may contain some problems that are unlike problems in the text in order to test your ability to solve unfamiliar problems.*** **If you have any questions regarding the grading process or the course requirements, it is your responsibility to ask for clarification.**

GENERAL COMMENTS

1. It is expected that you will need to spend at least six to nine hours per week outside of class time to succeed in this course.
2. If there is any material about which you have questions, you are expected to ask questions during class, during office hours or via email. Do not hesitate to ask questions in class. I might not have the answer immediately, but someone else might. If not, my goal will be to get an answer by the next class session.
3. Dates for exams other than the final are subject to change. Any change in such dates will be announced at least one week in advance of the new date. Anyone missing an examination without a written medical excuse or university athletic event will receive a zero for that examination, unless circumstances warrant special consideration.
4. Education is a collaborative process between instructor and students and among students. Much benefit can be gained by struggling through problems with your peers and sharing insights. Learn to work with each other and to learn from each other.
5. Class participation may also be taken into consideration in determining the course grade.

EXPECTATIONS FOR THE BEST EDUCATIONAL EXPERIENCE

The educational experience in this class will be best if we all – myself included - meet the following expectations for respectful, responsible, professional behavior:

- Attending class
- Being on time for class
- Being prepared for class by completing both the reading and the problem assignments
- Being attentive in class
- Giving, completing and grading assignments and exams in a timely manner
- Helping each other learn as much as possible during class

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- Seeking or providing help as necessary outside the classroom
- Treating each other with courtesy and respect
- Doing our best to make the class enjoyable and fun!

MISCELLANEOUS:

1. This class schedule is tentative and may be adjusted based on the progress of the class.
2. If there is any material about which you have questions, you are expected to ask questions during class, during office hours, or via email.
3. **If you have a documented learning, psychological or physical disability, you may be eligible for reasonable academic accommodations or services. To request accommodations or services, contact Tina Sonderby in the Student Success Center, 012 Krasa Student Center, extension 6512. All students are expected to fulfill essential course requirements. The University will not waive any essential skill or requirement of a course or degree program.**